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PARALYSIS, WITH DISEASE OF THE DORSAL PORTION OF THE
SPINAL CORD.

[Read before the Boston Society for Medical Improvement, February 8th, 1864, and communicated for the Boston Medical and Surgical Journal.]

BY CHARLES E. WARE, M.D., BOSTON.

THE subject was a strong and vigorous man, aged 47 years, who had always enjoyed good health. His first symptoms appeared in February, 1861, after great fatigue, excitement and exposure during a lecturing campaign at the West. They were, a prickling sensation in his right leg, followed soon by an uneasy feeling in his hips, and disability in both legs. He was about, through the summer, but gradually lost the power of motion in his legs. He was able to walk until November, when he went to a water-cure establishment. There he failed more rapidly, and began to have some tonic spasm and twitching in his lower extremities. From that time the disease slowly developed itself, until the time when I first saw him, June 7th, 1862.

He then had almost entire paralysis of motion of the lower extremities, and partial of the upper, so that he could only turn himself with assistance in bed. He had tonic spasms of his legs, unaccompanied by much pain. No loss of sensation, and no pain nor tenderness anywhere. There was a slight labor in his respiration, apparently from imperfect action of the diaphragm. In no part of the spinal column could there be detected the least tenderness on pressure, nor any sensitiveness on the application of heat or cold. The mind was perfectly clear and active. There was not a symptom of renal, cardiac, pulmonary, or other organic disease which could explain the history. He had not at any time had any acute symptoms which could be referred to the spinal cord.

When he entered the Hospital, April 21st, 1863, although he had lost flesh, his general aspect and condition were the same. His appetite was good. His pulse and tongue were natural. Digestion was perfect; the bowels were rather costive, and there was inconti-

VOL. LXX.—No. 15

nence of urine during the spasms of the lower extremities. The latter were always excited by motion. In the Hospital, he gradually failed in strength and flesh. His appetite became more uncertain, and a few weeks before his death he had an attack of vomiting and diarrhœa, which prostrated him very much. In August, pus was first noticed in his urine, and soon became considerable in quantity, with little dysuria, but with some pain in his loins and sacrum. The twitching of his lower extremities became less. His mind remained perfectly clear. He died quietly, Oct. 6th, 1863.

He was never regularly under the care of any physician, nor was he even willing to follow up any course of treatment, until after he entered the Hospital. Then, at his own request, he was put upon a course recommended by Dr. Brown-Séquard, the principal feature of which was hydriodate of potash and ergot, with extract of stramonium.

A careful *post-mortem* examination was made by an experienced anatomist. The brain was perfectly healthy. The spinal cord was removed with great care. Although perhaps somewhat under the normal size, it presented no appearance, to the eye alone, of any disease whatsoever. Except some disease about his urinary organs, which was undoubtedly secondary to his paralysis, all the other organs of the body were found perfectly healthy. The spinal cord was handed to Dr. Dean, who made the following report upon it.

Examination of the Spinal Cord. By JOHN DEAN, M.D.—The entire spinal cord was sent to me by Dr. C. Ellis; it was removed soon after death, and was in a very perfect condition when received, not having sustained the slightest mechanical injury. A careful external examination showed no signs of disease, and with the single exception that the whole cord was perhaps rather small and delicately formed, it appeared to be entirely healthy. It was then carefully divided into three portions—the first including the cervical enlargement, the second the dorsal portion of the cord, the third the lumbar enlargement and *cauda equina*. These were suspended in strong alcohol for nearly three weeks, until quite hardened, and sections were then cut for the purpose of further examination. I commenced by examining, under the microscope, sections cut from the cervical and lumbar enlargement, and could find no trace of morbid appearance throughout their entire extent. The form of the gray substance was as usual, the anterior and posterior cornua were perfectly symmetrical, and contained the usual multipolar nerve-cells. In a word, sections might have been cut from any part of either of the enlargements from which the great nerve-bundles proceeding to the extremities are derived, and shown as perfectly normal specimens. On examining the dorsal region of the cord, a series of very remarkable appearances was at once met with, involving so great a degree of asymmetry between the two sides of the cord, and so remarkable a distortion of the median fissure, both anteriorly and posteriorly, with

a corresponding displacement of the central canal, as to lead at first to the supposition that the cord must have sustained some severe mechanical injury. This, however, as stated above, was not the case, and a little reflection will show that the appearances represented in the accompanying figures could hardly have been produced by any degree of mechanical twisting of the cord. This is made especially evident by comparing Figs. 1—5 with Fig. 6; the latter figure being taken from a section in the lower part of the dorsal region of a healthy adult cord, and drawn by the camera lucida with the same magnifying power as the rest of the figures. It will therefore serve very well for the purpose of comparison.

In the upper part of the dorsal region the cord was about two thirds the natural size (Fig. 1); and in section the anterior and posterior cornua were readily made out, and were tolerably well developed; the anterior cornua containing the usual large multipolar cells. The external outline of the cord was, however, much distorted, the axis of the cord represented by the fissure being displaced some 30° , followed by a corresponding displacement of the anterior and posterior cornua from the right line. Around the lateral and posterior portions of the cord, a border of degenerated or softened substance was found (shown in the figures by the shaded portions, X X), which was quite friable, as was evidenced by the difficulty found in hardening it, and by the breaking down of the structure in the attempt to cut sections. Examined under higher powers, this belt of morbid substance was found to consist of broken down nerve-tubes, with granular matter, corpora amylacea and larger nodules, which latter, when treated by an acid, left an organic skeleton, and were probably formed by a deposit of phosphate of lime around a nucleus of degenerated material. A little lower down the greatest degree of degeneration was noticed (Fig. 2), the belt of morbid material extending on the right hand side of the cord, around through the lateral white columns to the anterior portion of the cord, where the substance was quite broken down, the cord, as will be

FIG. 1.



FIG. 2.



seen in the figure, presenting a ragged and broken margin. In the posterior portion of the cord, the morbid belt was quite wide, and on the left hand side (Fig. 2) will be seen a distinct channel hollowed out in the posterior white columns, and bounded by a smooth margin, which was traced longitudinally for a distance of nearly half an inch. Very numerous corpora amylacea and earthy nodules were found in this region. In this figure the gray substance has undergone some alteration; it has not only been displaced by the morbid changes in the white columns, but has, especially on the left side of the figure, undergone a decided atrophy, both the anterior and posterior cornu on that side being very much reduced as compared with the other side, or still more evidently when compared with the normal cord (Fig. 6). In the following figures (Figs. 3, 4, 5) from the central and lower portions of the dorsal region, this atrophy of the anterior white and central gray substance, together with the degeneration of the posterior and lateral white columns, becomes still more evident, the nerve-cells, especially on the atrophied side of the cord, becoming smaller and less numerous, the anterior cornu on the left side, in Fig. 4, hardly containing any nerve-cells.

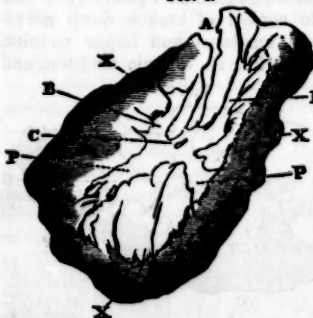
FIG. 3.



FIG. 5.



FIG. 4.

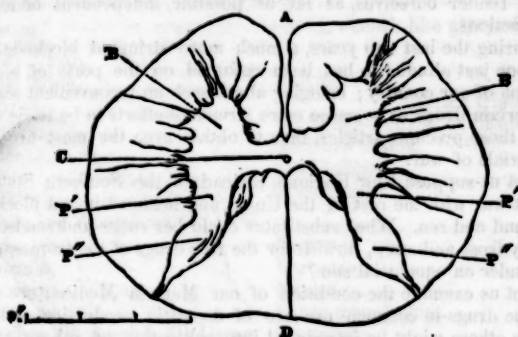


Very few cells were found in the posterior cornua, and on the

atrophied side no trace could be found of the *posterior vesicular column*, usually so well developed in this region.

The belt of degenerated substance is largely developed in this portion of the cord, extending (Figs. 3, 4) quite into the anterior white column.

FIG. 6.



These were the chief morbid appearances noticed, and the case seems very remarkable as presenting evidence of such decided degeneration and morbid change confined to so comparatively small a portion of the cord, completely circumscribed and limited to this portion, the remainder of the cord being perfectly healthy.

Description of the Figures.

- FIG. 1.—Section from the cord close to the commencement of the dorsal region.
 FIG. 2.—Section from the upper dorsal region.
 FIG. 3.—Section from the central dorsal region.
 FIG. 4.—Section from the same.
 FIG. 5.—Section from the lower dorsal region.
 FIG. 6.—Section from adult, healthy cord, near the central dorsal region.

The lettering corresponds in all the figures.

- A.—Anterior median fissure.
 D.—Posterior median fissure.
 C.—Central canal.
 B.—Anterior cornu.
 E.—Posterior cornu. F'.—Cervix cornu. F''.—Caput cornu.
 X.—Belt of morbid substance.

The figures are all drawn with the same power, by the camera lucida, the magnifying power being about $8\frac{1}{2}$ diameters.

OUR NATIVE MATERIA MEDICA.

By FRANCIS MINOT WELD. AN ESSAY TO WHICH ONE OF THE PRIZES OF THE BOYLSTON MEDICAL SOCIETY WAS AWARDED.*

[Communicated for the Boston Medical and Surgical Journal.]

SHORTLY after the close of our last war with England, Dr. Jacob Bigelow issued a series of volumes on the Native Medicinal Plants of the United States: a work written with so great care and tho-

* A prize awarded to under-graduates of Harvard Medical School.

roughness, and illustrated with such accuracy and beauty, as to be still our classic manual in this branch of medical literature. In the preface to this work, the author alludes to the effect of the blockade of our ports by the British, in cutting off supplies of drugs. He therefore strongly urges an examination of all our native plants, so as to render ourselves, as far as possible, independent of foreign productions.

During the last two years, a much more stringent blockade than the one just alluded to has been enforced on the ports of a large section of our country; bringing about such an inconvenient scarcity of certain drugs as to cause more strenuous efforts to be made to secure these precious articles, than to obtain even the most necessary materials of war.

Let us suppose New England, instead of the Southern States, to be at war with the rest of the Union, and hemmed in and blockaded by land and sea. What substitutes could her rocks and sands, chilled by frost and snow, furnish for the rich drugs of the tropics, ripened under an equatorial sun?

Let us examine the condition of our *Materia Medica*: see which of the drugs in common use are of domestic production, and how many others might be introduced into cultivation, or otherwise supplied; learn precisely the number and value of those which cannot possibly be furnished from our own resources; and, lastly, find whether among native products hitherto neglected, we may not discover substitutes, partial or complete, for some of the foreign drugs.

The general plan pursued in the present paper is this. Taking the classification and list of medicinal agents adopted in Stillé's work on *Materia Medica*, the latest available authority, the principal sources of our present supply will be stated in connection with each drug separately. The words native and naturalized are used with reference to the New England States. Where Stillé has omitted to speak of drugs mentioned with approval by other writers of authority, particularly Dr. Bigelow, they will be annexed to the list. Next, taking each class of drugs separately, our resources and more important deficiencies in that class will be very briefly discussed, with whatever remarks the subject may suggest. Finally will come a concise summary of the results arrived at.

The principal authorities consulted are—The United States Dispensatory (1858), Stillé's and Wood's works on *Materia Medica*, Dr. Bigelow's *Medical Botany*, various State Geological Reports.

CLASS I.—LENITIVES.

Mucilaginous.

| | |
|-----------|--------------------------|
| Acacia, | Africa. |
| Althea, | Naturalized from Europe. |
| Cetraria, | Europe—also native. |
| Chondrus, | " " " |
| Linum, | Native. |

| | |
|-----------------------------------|-------------------------------|
| Salep, | Levant. |
| Sassafras medulla, | Native—good subs. for acacia. |
| Sesamum, | India. |
| Tragacantha, | Asia Minor. |
| Ulmus, | Native. |
| Amylum, | " |
| Ginseng, | " —much like glycyrrhiza. |
| <i>Amylaceous.</i> | |
| Arenæ farina, | Native. |
| Hordeum, | " [Arum triphyllum. |
| Maranta, | W. Indies—might be made from |
| Oryza, | Southern States. |
| Sago, | East Indies. |
| Tapioca, | West Indies. |
| <i>Fatty and Oleaginous.</i> | |
| Adeps, | Native. |
| Amygdala, | Barbary. |
| Cetaceum, | Marine. |
| Glycerina, | Home manufacture. |
| Ol. Olivæ, Ol. Amygd., Ol. Cacao, | Imported. |
| Sevum, | Native. |
| <i>Gelatinous.</i> | |
| Gelatina. | Native. |
| Icthyocolla, | Imported—also made here. |
| Collodium, | Cotton from South. |
| <i>Saccharine.</i> | |
| Glycyrrhiza, | Europe. |
| Mel, | Native. |
| Saccharum, | " from maple. |

CLASS II.—ASTRINGENTS.

| | |
|-------------------|------------------------------------|
| <i>Mineral.</i> | |
| Alumen, | Imported—can be made here. |
| Bismuthi subnit., | Bismuth is found at Monroe, Ct. |
| Plumbum, | { Lead ores in N. H., and Hamp- |
| | { den Co., Mass. |
| Zinci acetas, | { Germany. A carbonate of iron |
| " carb. præcipit. | { and zinc exists in New Hamp- |
| | { shire and at Worcester, Mass. |
| <i>Vegetable.</i> | |
| Acid tannicum, | Obtainable from native products. |
| " gallicum, | Tannic acid. |
| Catechu, | India. |
| Galla, | { Mediterranean—there are na- |
| Geranium, | { tive specimens, probably useful. |
| | Native. |

| | |
|------------------------------|------------------|
| Hæmatoxylon, | Central America. |
| Kino, | Africa. |
| Krameria, | Peru. |
| Quercus alba and tinctoria, | Native. |
| Rosa Gallica, | Cultivated. |
| Rubus villosus—R. trivialis, | Native. |

CLASS III.—IRRITANTS.

Mineral.

| | |
|--|--|
| Acidum acet., Acetum, | Native. |
| " nitricum, | { From nit. of potash or nit. of soda, both usually imported. |
| Chlorinium and aq. chlor., | From native sources. |
| Calx chlor. and ac. mur., | { Require sulphuric acid for their manufacture. |
| Ac. sulphuricum—its compounds and preparations, | { Usually made from combustion of sulphur; may be made in abundance from native sulphate of iron. |
| Liq. ammoniæ, | From native products. |
| Potassa and preparations, | " " " |
| Sodæ carbonas, | { Made artificially with aid of sulphuric acid. |
| " boras, | Europe, India, &c. |
| Calx, &c., | Native. |
| Argenti nitras, | " ores. |
| Cupri sulphas, | " " |
| Zinci chloridum, | " " |
| Antimonii terchlor., | Antimony in Maine and N. H. |

Vegetable Irritants.

| | |
|----------------------|-----------------------------|
| Sinapis, | Cultivated. |
| Capsicum, | " |
| Pix abietis, | Native. |
| Mezereon, | Somewhat cultivated. |
| Pyrethrum, | Cultivated. |
| Sabina, | Native. |
| Ol. monard. punct. | Middle States. [vated here. |
| Clematis Virginica, | Native. |
| Arum triphyllum, | " |
| Ranunculus bulbosus, | " |

Animal Irritants.

| | |
|------------------------|----------------------------|
| Cantharis vesicatoria, | Vicinity of Mediterranean. |
| " vittata, | Southern States. |
| " atrata-marginata, | Native. |

CLASS IV.—TONICS.

| | |
|-------------------|---------|
| <i>Specifics.</i> | |
| Ferrum, | Native. |

| | |
|---------------------------------------|-----------------------------------|
| Cinchona. | South America. |
| Salix, | Native. |
| Cornus Florida, | " |
| Prunus Virginiana, | " |
| <i>Simple Bitter Tonics.</i> | |
| Colomba, | Africa. |
| Gentiana, | Europe. |
| Quassia, | West Indies. |
| Simaruba, | " " |
| Sabbattia, | Middle and Southern States. |
| Centaurium, | Europe. |
| Chiretta, | India. |
| Coptis, | Native. |
| Xanthorrhiza, | Southern and Western States. |
| Menyanthes trif.—Alctris farinosa, | Native. |
| Polygama polyg. | |
| <i>Stimulant Tonics.</i> | |
| Anthemis—Eupatorium, | Cultivated. |
| Angustura—Cascarilla, | West Indies. |
| Marrubium, | Naturalized from Europe. |
| Contrayerva, | Central America. |
| Calamus—Angelica, | Native. |
| Aurantii Cortex, | West Indies and Mediterranean. |
| Wintera, | South America. |
| Millefolium, | Cultivated by Shakers and others. |
| <i>Tonic and Aromatic Stimulants.</i> | |
| Anisum, Carum, Foeniculum, | } Are common garden herbs. |
| Lavandula, Melissa, Mentha | |
| piperita and viridis, Origa- | |
| num, Ros marinus, Ruta, Sal- | |
| via and Thymus, | |
| Asarum, Gaultheria, Hedeoma, | } Native. |
| Sambucus, | |
| Ol. cajuputi, | Moluccas. |
| Cinnamomum, | Ceylon. |
| Cassia—Piper, | Java. |
| Canella—Pimenta, | West Indies. |
| Caryophyllus—Myristica, | Moluccas. |
| Cardamomum, | India. |
| Coriander, | Europe. |
| Cyminum, | Egypt. |
| Monarda, | Vide Ol. monardæ. |
| Zinziber, | W. Indies, Africa, S. America. |

CLASS V.—GENERAL STIMULANTS.

| | |
|------------------------------|---------------------------------|
| <i>Heat and Electricity.</i> | |
| Vinum, | Native—from grape, currant, &c. |

| | |
|---------------------------|------------------|
| Alcohol, | Native. |
| Ol. terebinth.—Creasotum, | " |
| Ammonia carb., | " |
| Arnica, | Northern Europe. |
| Toxicodendron, | Native. |

CLASS VI.—CEREBRO-SPINAL STIMULANTS.

Narcotics.

| | |
|------------------|----------------------------|
| Opium, | Asia—may be produced here. |
| Lactucarium, | Cultivated. |
| Hyoscyamus, | Naturalized. |
| Belladonna, | Native. |
| Stramonium, | " |
| Humulus, | Cultivated. |
| Cannabis Indica, | India. |
| " sativa, | Native. |

Antispasmodics.

| | |
|-----------------------------|---------------------------------|
| Assafoetida, | Persia, &c. |
| Dracontium—Valeriana, | Native—cultivated. [yard. |
| Succinum, | Found at Nantucket and M. Vine- |
| Castoreum, | Russia and Canada. |
| Moschus, | Russia and China. |
| Camphora, | China. |
| Æther sulphuricus, | |
| Æther chloric fort., | Native. |
| Æther nitricus, | " |
| Chloroform, | " |
| Cuprum ammoniatum, | " |
| Zinci oxid. and Valerianas, | " |

CLASS VII.—SPINANTS. (Tetanica.)

Spinants in General.

| | |
|-----------------------|-------------------------------|
| Nux vomica—Strychnia, | Ceylon, &c. |
| Faba St. Ignatii, | Philippines. |
| Toxicodendron, | Vide Gen. Stimulants. Native. |
| Ergota, | " Emmenagogues. " |
| Sodæ boras, | " Irritants. Europe. |

CLASS VIII.—GENERAL SEDATIVES.

Cold.

| | |
|----------------------------|---------|
| Acidum hydrocyanicum dil., | Native. |
| Potassii cyanidum, | " |

CLASS IX.—ARTERIAL SEDATIVES.

| | |
|------------------|--------------------------|
| Digitalis, | Europe. Cultivated here. |
| Veratrum viride, | Native. |

CLASS X.—NERVOUS SEDATIVES.

| | |
|-----------|-------------------------------|
| Aconitum, | Cultivated here for ornament. |
| Conium, | Native or naturalized. |

| | |
|-----------------|---------------------------------|
| Cicuta, | Native. |
| Cerii oxalas, | Sweden. |
| Cocculus, | Malabar. |
| Lobelia, | Native. |
| Tabacum, | Cultivated in Conn. and Mass. |
| Veratrum album, | Europe. Little used. [veratria. |
| " sabadilla. | Mexico. Used in manufacture of |

CLASS XI.—EVACUANTS.

Errhines.

| | |
|---------------------|---------|
| Asarum Europæum, | Europe. |
| Helenium autumnale, | Native. |

Emetics.

| | |
|-------------------------------|-----------------------------------|
| Zinci sulphas, | From native zinc. [ties. |
| Antimonii et potassæ tartras, | Antimony, native in small quanti- |
| Ipecacuanha, | South America. |
| Alumen, | Vide Astringents. Native. |
| Cupri sulph.—Sinapis, | " Irritants. " |
| Scilla, | " Expectorants. Europe. |
| Tabacum—Lobelia, | " Nerv. Sedatives. Native. |
| Gillenia, | Native. |
| Hydrargyri sulphas flavus, | Vide Alteratives. California. |

Phytolacca decandra, Sanguina-
ria, Iris versicolor, Apocy-
num, Dirca palustris, Erythro-
nium Americanum,

Are all native.

Cathartics.

| | |
|--------------------------------|--|
| Sulphur lotum, | From volcanic regions. |
| Magnesia—M. carb. and sulph., | From native sources. |
| Sodæ sulphas, | In various manufactures. |
| Potassæ tartras and bitartras, | France. |
| Sodæ et potassæ tartras, | From pot. bitart. and sod. carb. |
| Oleum olivæ—Manna, | Southern Europe. |
| Cassia fistula—Tamarindus, | India. Cassia also in W. Indies. |
| Oleum ricini, | { Cult. in Ohio, and occasionally in New England. |
| Senna, | Egypt. |
| Cassia Marilandica, | Native. About equal to senna. |
| Rheum, | Turkey, &c. Native quality poor. |
| Juglans, | Native. Good subs. for rheum. |
| Colocynthis, | Asia Minor. |
| Jalapa, | Mexico. |
| Scammonium, | Syria. |
| Gambogia, | Ceylon, &c. |
| Aloes, | Cape of Good Hope, India, &c. |
| Oleum tigllii, | India. |
| Helleborus, | Europe. |

Podophyllum,
Triosteum,
Oleum terebinthinæ
Elaterium,

Native. Like jalap.
" Not abundant.
Vide Stimulants. Native.
Produced in Eng.; can be here.

Expectorants.

Senega.
Cimicifuga,
Allium,
Ammoniacum,
Myrrha,
Balsam Peruv.—Tolut.,
Benzoinum,
Pix liquida,
Copaiba,
Scilla,
Terebinthinæ—Ammoniac carb.,
Ammoniac murias,
Ipecacuanha,
Sulphur,
Assafetida,

Native in West. N. Eng. (Gray.)
Native. Of doubtful value.
Cultivated.
Persia.
Africa.
Central and South America.
Sumatra.
Native. [W. Indies.
Vide Diuretics. S. America and
Europe.

Asclepias tuberosa,

Vide Gen. Stim. Native.
" Alteratives. "
" Emetics. South America.
" Cathartics. Italy, &c.
" Antispasmodics. Persia.
{ Native. Highly recommended
by Drs. Bigelow & Chapman.

Diaphoretics.

Liquor ammoniac acetatis,
Potassæ citras—Citric acid,
Spiritus ætheris nitrosus,
Pulv. ipecac. et opii,
Guaiacum,
Sassafras—Solidago,
Serpentaria,

Native.
From the Mediterranean, &c.
Native.
Vide Ipecac. and Opium.
West Indies.

Xanthoxylum Americanum,

Native.
Middle and Western States.
{ Native. Much like Mezereum
and Guaiacum.

Ammoniac carbonas,
Potassæ nitras,
Antimonii et potassæ tart.,
Sarsaparilla,
Mezereum,

Vide Gen. Stim. Native.
" Diuretics. "
" Emetics. So. America.
" Alteratives. Europe, &c.
" Irritants. Cult. a little.

Diuretics.

Potassæ nitras,
" acetas,
Ammoniac phosphas,
Armoracia—Carota—Uva ursi,
Scoparius—Petroselinum,
Taraxacum—Juniperus,
Propylamin,
Scilla,

Native.
"
"
"
Cultivated.
Naturalized.
Native.
Vicinity of Mediterranean.

Buchu,
Copaiba,
Cubeba,
Colchicum,

Potassæ bitartras,

Sodæ boras,

Spiritus ætheris nitrosi—Li- }
quor ammoniæ acetatis,

Dulcamara,

Ol. terebinthinæ,

Emmenagogues.

Ergota,

Rubia tinctorum,

Sabina—Cantharis,

Juniperus,

Sodæ boras,

Ferrum,

Millefolium—Ruta,

Tanacetum,

Guaiacum,

Aloes,

Helleborus niger,

Anthelmintics.

Mucuna,

Stanni pulvis—Tanacetum,

Filix mas,

Chenopodium—Spigelia,

Santonici semen,

Granatum,

Absinthium,

Azedarach,

Bayera (kousso),

Cucurbita pepo,

Kameela,

Saoria,

Zatze,

Oleum terebinthinæ,

Cape of Good Hope.

West Indies and So. America.

Java, &c. [here.

Europe. Somewhat cultivated

{ Vide Cathartics. Ac. tart. im-
ported.

Vide Irritants. Italy, &c.

" Diaphoretics. Native.

" Narcotics. Native.

" Stimulants. "

Native.

Southern Europe.

Vide Irritants. Native.

" Diuretics. "

" Irritants. Europe.

" Specific Tonics. Native.

" Stimulants. Cultivated.

" Anthelmintics. Native.

" Diaphoretics. W. Indies.

" Cathartics. So. Africa.

" " Europe.

East and West Indies.

Native.

" probably.

Southern States.

Persia. [what cultivated.

So. Europe and Africa. Some-

Naturalized.

Asia. Southern States.

Abyssinia.

Cultivated everywhere.

India.

Abyssinia.

Africa.

Vide Gen. Stimulants. Native.

CLASS XI.—ALTERATIVES.

Hydrargyrum,

Arsenicum,

Iodinum,

Oleum Morrhuæ,

Potassæ chloras,

Ammoniæ murias,

California, &c.

Native.

Sea-weeds and Saratoga Springs.

Along the coast of New England.

{ By passing chlorine through a

{ solution of potassæ carbonas.

Native.

Sarsaparilla,
Chlorinium,
Colchicum,
Dulcamara,
Guaiacum,
Mezereum,

From Mexico and So. America.
Vide Irritants. Native.
" Diuretics, "
" Sedatives. "
" Diaphoretics. W. Indies.
" Irritants. Cultivated.

[To be continued.]

ON THE HYPODERMIC TREATMENT OF UTERINE PAIN.

By J. HENRY BENNET, M.D., LATE PHYSICIAN-ACCOCHEUR TO THE ROYAL FREE HOSPITAL.

DURING the present winter I have used, with prompt and marked success, the hypodermic injection in several cases of severe dysmenorrhœa, with or without hysterical complications, and in several others of uterine and ovarian neuralgia, and of facial neuralgia having a uterine origin. The relief has been obtained in from fifteen to thirty minutes, without being attended or followed by the headache, loss of appetite, or nausea, which are so frequently the result of the use of opiates in any other way, even by injection into the rectum. This latter mode of administering opiates has hitherto been my sheet-anchor in the treatment of uterine spasms and pain, and is certainly most efficacious; but it is not unfrequently attended by all the above-mentioned drawbacks, from which the hypodermic injection appears to be singularly free. In nearly all the instances in which I have tried this mode of introducing opiates into the system, the sedative result alone has been produced: there has been no subsequent bad effect whatever.

In one case of severe uterine tormina and pain, the result of arrested menstruation from cold, I injected thirty minims of the solution of morphia. In half an hour the pains, which had been agonizing for the previous twenty-four hours, were calmed. A good night's rest followed; and the next morning the menses had resumed their course, and my patient was all but well. In another similar case, the uterine pain was accompanied by severe hysterical symptoms. The injection was followed by the same favorable result—ease, sleep, and rapid disappearance of all morbid symptoms.

Owing to the complete control over the element of pain which the hypodermic injection of opiates appears to give, I have been able to carry on the necessary treatment in an interesting case of uterine disease, which I should otherwise have been obliged to treat under chloroform, or at a great disadvantage. The patient, a young German lady of twenty-four, came to Mentone last autumn, by direction of her medical attendants, with the view of spending the winter in the South. She was considered to be suffering from neuralgia, facial and general, and from nervous irritability of the system in

general. She had been travelling with her husband from place to place, from bath to bath, in the search for health, for more than two years. On being consulted, I recognized the existence of a host of uterine symptoms, and found that the neuralgic and nervous illness had manifested itself after a severe confinement, which had occurred about three years ago. The discovery of extensive inflammatory ulceration of the neck of the womb gave the key to the state of ill health. Singularly enough, none of her previous medical attendants had suspected the uterine origin of the neuralgia. Such cases are always very difficult to treat—interference with the uterine lesion all but invariably rousing the neuralgia. I have repeatedly had cases of the kind that I could only examine and treat locally by giving chloroform to the full surgical extent on each occasion, and this I have had to do twenty or more times in the same patient.

With the patient in question the surgical treatment of the ulceration was borne tolerably well at first, but as the diseased surface became more healthy, and consequently more sensitive, endurance diminished. Every time the sore was touched severe neuralgia followed, and the general health began to flag. In former days I should have suspended all treatment, and have sent the patient to the country for a couple of months, to allow the nervous system to calm down, and to let Nature do her best. In this instance such a course was not desirable, my patient being very anxious to continue the necessary treatment so as to be locally cured before we separated in the spring. I thought, therefore, of the hypodermic treatment, and tried the injection of thirty minims of the solution of morphia immediately after each uterine dressing. This course was attended with complete success; no neuralgia ensued, and I have been able to continue uninterruptedly the treatment now all but brought to a successful issue. On one occasion I omitted the precaution, and was sent for at ten o'clock at night. I found the patient a prey to a most distressing attack of facial neuralgia, which had come on an hour before. She was positively convulsed and shrieking with agony. Chlorodyne, sulphuric ether, &c., had been taken, with no relief. I injected the thirty minims of morphia solution, and in twenty minutes she was calm and free from pain. It was repeated next day, and the facial neuralgia has not returned. This lady will no doubt gradually recover her health and get rid of the neuralgia when the uterine disease is thoroughly cured.

In a case of pure neuralgia, attacking first one and then another part of the body, I have injected from twenty to thirty minims of the acetate of morphia solution forty-two days in succession, without any unfavorable result. The neuralgia, which was very severe, was entirely subdued by it for about eighteen or twenty hours, when it re-appeared, gradually increasing in intensity until the injection again relieved it. At the end of that long period the pains gave way, the treatment having been either curative, or having allowed the neural-

gic attack to wear itself out. During the entire period of treatment, the patient, a very delicate lady, slept better than usual, ate as well (her appetite being usually bad, and the digestive powers weak), and was able to take part socially in all that was going on around her. No one, indeed, was aware, except her family, that she was suffering from so painful a malady. To my surprise, I was able to suspend the morphia suddenly, without any of the distress and discomfort which is habitually observed when opiates have been long used and are abruptly abandoned.

From what I have seen of the hypodermic system, I believe that its use is capable of great extension in the treatment of pain generally. I consider that the injection of a solution of morphia after any operation would deaden pain, and produce a general calm of the system both soothing and beneficial to the patient. I think also that this result might be obtained in most cases without the usual drawbacks of opiates taken internally.

Some years ago I recommended in the *Lancet* the injection of opium into the rectum as a means of modifying and even arresting obstinate sea-sickness. Since then various additional cases have come under my notice illustrating its efficacy. The great difficulty to all medication in sea-sickness is the fact that the stomach absorbs fluids with difficulty. By injecting subcutaneously, this difficulty is got over. Moreover, a subcutaneous injection would be managed easier on shipboard than the rectal injection, to which most people have a very natural antipathy.

I have used all but exclusively a solution of acetate of morphia in distilled water. Nine grains dissolved in two ounces of water gives a strength about equivalent to that of laudanum. The liquor morphiæ of the *Pharmacopœia* contains spirit, and I have found that it constantly occasions small patches of painful inflammation; without the spirit, on the contrary, it appears to be quite innocuous. A moderate sized steel needle or canula I find preferable to the small gold one. The steel canula is sharper, and passes easier through the skin. By pinching firmly the fold of skin that has to be pierced between the finger and thumb, its sensibility to the puncture is much diminished. It does not seem to matter much, as regards results, in which region of the body the injection takes place. I have principally chosen the præcordial region for uterine and general pain, and for local neuralgia a spot as near to the region affected as possible.—*London Lancet*.

DR. LIVINGSTONE.—We rejoice to learn that the report of the untimely end of Dr. Livingstone is unfounded. Late mails from the Cape of Good Hope report that he is well, and expected shortly to arrive at Cape Town.—*London Lancet*.

 THE BOSTON MEDICAL AND SURGICAL JOURNAL.

 BOSTON: THURSDAY, MAY 12, 1864.

TRICHINIASIS.—We published in our last number an extract from a foreign journal relating to the wholesale poisoning of a large assembly at Hettstädt, Germany. The fatal agent used was *Trichina spiralis*, served in hog's flesh at a feast. Disregarding the injunction in Leviticus concerning swine, "Of their flesh shall ye not eat, and their carcase shall ye not touch; they are unclean to you," eighty-three persons ate and died, and there can be no doubt that many instances of death attributed to poison or mysterious disease are due to the same cause. It would really seem as if the hog were created to serve as a foul nursery for the most loathsome parasites which infest man, and our aversion to him, which long ago amounted to complete abstinence from pork in every form, is now increased tenfold by the recent information that the encysted *Trichinæ*, which are occasionally found in the muscles of man on dissection and which we knew were derived from the muscles of swine, instead of being the harmless parasites we have hitherto considered them, form one of the most deadly diseases known. Unfortunately there are no symptoms of trichiniasis in the pig, after the encysted stage, and the presence of the capsules which contain the worms would hardly be noticed in its flesh on account of their near resemblance in color and the amount of fat with which the latter is infiltrated. The disease has never yet been met with in any herbivorous animal, and according to Langenbeck *trichinæ* have been found in great numbers in earth-worms (as many as 500 or 600 in a single worm), which form part of the food of swine when at liberty. A committee, consisting of Virchow, Remak, Gurli and others, has been appointed by the Berlin Medical Society to investigate the whole subject. We add for the further information of our readers an interesting account by M. Davaine of the symptoms produced in man by this disease, for which we are indebted to the April number of *The American Journal of the Medical Sciences*:—

"When *trichinæ* exist in great numbers, their presence in the muscles or intestines produces severe and sometimes fatal symptoms. These symptoms may, in animals experimented on, present three successive, more or less distinct phases.

"The first phase is characterized by intestinal disorder, produced by the development of the larvæ in large numbers and their adhesion to the mucous membrane of the intestine. In this stage, M. Davaine has seen rabbits die with intense diarrhœa; one of two cats which he fed with trichinized meat had diarrhœa for at least a fortnight, but survived. Of five or six rats fed on a similar diet, one only, which was pregnant, died of diarrhœa, after abortion on the eighth day. According to M. Leuckart, the passage of the embryos of the *trichinæ* through the intestinal walls sometimes produces peritonitis. This intestinal phase often becomes blended with the next; it may be relieved by the expulsion of the worms by means of the diarrhœa; or may cease with the natural death of the worms.

"The second stage presents general symptoms—muscular pains, &c. These phenomena are dependent on the introduction of the trichinæ into the muscles; they rapidly acquire their maximum intensity, and have not a long duration. The appearance and duration of this stage are in complete relation with the development and length of sojourn of the trichinæ in the intestines; in fact, in this entozoon oviposition is not slow and of long duration as in many nematoid worms; the genital tube is rapidly formed, and the ova in its whole length are developed almost simultaneously, so that the embryos, arriving soon at maturity, are at once thrown out in large number into the intestine, and the mother trichina dies exhausted. If it be remembered that the embryos do not escape before the eighth day, that a certain number of days are required for their arrival in the muscles, and that new ones are not produced after six or seven weeks, it will be understood that the first symptoms of this stage can scarcely appear until the end of a fortnight after ingestion of the diseased food, that they must continue four or five weeks, and that after this they may disappear. This course of events is observed in animals; and in man, the symptoms of this stage have shown themselves and become aggravated from the third to the sixth week after infection. Most animals die during this stage; rabbits rarely survive; rats, on the contrary, generally resist it.

"If the animals do not die of the general symptoms or local disturbances proper to these two stages, the inflammatory symptoms cease, respiration becomes natural, and order is reëstablished. But, in some cases, the number of cysts formed in the muscles are sufficiently great to impede the proper exercise of their functions, and hence arise general debility, a kind of consumption which persists or becomes aggravated, and the animal dies of marasmus. M. Davaine has noticed this in rabbits, but especially in a rat.

"Recovery from these phases of trichinal infection may be apparently perfect. A rabbit, which M. Davaine kept during five months, became large and fat, although it had a large number of trichinæ in its muscles; a rat which had had these entozoa in considerable numbers during six months was to all appearance in good health. Hence he concludes that the trichinæ produce symptoms only when they are in the intestinal canal and when they are entering the muscles. Having become lodged in their cysts among the muscular fibres, they may remain harmless for an indefinite time. In every case except one, down to 1859, trichinæ have been found in the bodies of persons who have died of disease (generally chronic) or by accident, or in the dissecting room in bodies regarding which the previous history could not be obtained. In most cases, the cysts contained a cretaceous or fatty deposit, showing that they had probably existed for several years.

"The observations which have been made on the human subject in regard to the symptoms caused by trichinæ show that they belong, as in animals, to the initial period of infection. They consist in intestinal and muscular lesions; the latter coincide with the entrance of the parasite into the muscles, and are truly traumatic. In Zenker's case, the intestinal symptoms present were swelling and pain; in a case described by Friedrich, diarrhoea was present. In all cases, the most remarkable symptoms were violent rheumatoid pains in the muscles, not in the joints, which were considerably aggravated by attempts to extend the half-bent limbs. The other symptoms have been variable,

but have had a strong resemblance to those of typhoid fever. In several cases there has been abundant sweating, and in one there was a very remarkable miliary and furuncular eruption. The animal heat was diminished in Friedrich's case; and in those observed in Voigtland by Freytag, the temperature never exceeded 102° Fah.

"The progress, duration, and severity of the disease in man are in relation to the number of trichinæ taken into the digestive canal. Of sixteen patients observed at Plauen by Drs. Boehler and Koenigsdœrfer, eight, who were moderately affected, recovered in a month; four, more severely diseased, were ill two months; of four others, one died with ascites and colliquative diarrhœa at the end of two months, and three recovered slowly at the end of three or four months. Recovery does not imply the death of the trichinæ; it follows their inclosure in cysts.

"The diagnosis of trichinal infection has several times been made in the living human subject by removing a portion of muscle. M. Davaine thinks it probable that, during the first six or eight weeks of the disease, the diagnosis may be confirmed by searching for adult trichinæ in the alvine evacuations, produced naturally or by means of a purgative."

MESSRS. EDITORS,—A few weeks since you announced in your "Obituary" simply the fact of the death of Dr. Moses Clarke, of East Cambridge. I had long known him, and had so admired his indomitable fortitude in resisting disease, that I feel unwilling to let his memory pass away without further notice. About fifteen years since I saw him for the first time. He was then suffering from hæmoptysis. I was struck with his admirable deportment. He calmly, nay *genially*, received his fate. I met him very often afterwards until within a few days of his death, and he was always the same. To see him was a delight. It was like seeing the first bursts of the brooks in spring. An elastic cheerfulness and a real Christian submissiveness to the will of Heaven seemed thoroughly to pervade him. He loathed croaking. It was impossible to be otherwise than joyful while in his presence. For months before his death his dysphagia was horrible, and at times he was aphonic. Yet he never complained. His smile was always contagious. It was not the smile of levity, but that of a man determined to meet with serenity and cheerfulness whatever the good God should choose to send upon him. His death is a real loss to all who knew him. They will miss the support that he used to give them by his silent example. I hope you may find a place in your JOURNAL for the following brief items of his life. Yours, &c., H. I. B.

Dr. MOSES CLARKE was born January 18th, 1818, and died at East Cambridge, March 29th, 1864, aged 46 years. He was the son of Greenleaf Clarke, Esq., of Atkinson, N. H. He descended in a direct line from Nathaniel Clarke, a merchant and civilian, of Newbury, Mass., who died there in 1690. His mother was Julia Cogswell, daughter of Dr. William Cogswell, of Atkinson, a surgeon in the Revolutionary War, and successor of Gov. Eustis in the charge of the military hospital at West Point. She descended in a direct line from John Cogswell, a merchant of London, who came to this country in about 1630, and settled in Chebacco, Mass. His great uncles, both

on his father's and mother's side, served in the War of the Revolution, as officers or privates, one of them entering the army at the age of fifteen years, and so youthful in appearance as to attract the notice of General Washington. The combined term of their service in the War, including that of his grandfather, amounted to more than thirty-five years. He received a thorough education at Atkinson and Pembroke academies, and his medical degree at Dartmouth College in 1848, having studied under the direction of Dr. Josiah Crosby, now of Manchester, N. H., and Dr. Dixi Crosby, Professor in the Dartmouth Medical Institution.

A friend, writing in the Cambridge Chronicle, says:—"He first entered upon his profession in Derry, N. H., where he remained about a year, when, in 1844, he removed to East Cambridge, where he continued in a successful practice almost up to the time of his death. He was a member of the School Committee of this city ten or twelve years, and City Physician about the same length of time, and in both situations discharged his duties with distinguished ability and fidelity. As a member of the School Committee he won the love and respect of his associates and of the teachers of our schools, and his long continuance upon the Board is evidence of the high appreciation in which he was held by his fellow citizens generally. As City Physician he went beyond his prescribed duties and outside of his profession, and labored to promote the moral and spiritual welfare of the inmates of our Almshouse, by means of a Sabbath School, which he superintended as long as his health would allow. He was a man of character and independence; not obstinate, but firm; if he saw his duty in a particular path, he did not fear to travel it, however rough and thorny it might be. The satisfaction which comes of duty done was to him far above any temporary applause resulting from a time-serving course. He was a true man in the fullest sense of the word; deceit formed no element of his character."

A relative, who knew him well, gives the following brief but comprehensive summary of his character:—"He was affectionate in all the relations of domestic life, patriotic and public spirited as a citizen, highly respected as a physician, honest and independent in action, heroic in suffering, and practical and consistent as a Christian.

"That life is long which answers life's great end."

In this sense he died at a mature age."

| | Males. | Females. | Total. |
|---|--------|----------|--------|
| Deaths during the week | 49 | 48 | 97 |
| Ave. mortality of corresponding weeks for ten years, 1853-1863, | 39.8 | 36.4 | 75.2 |
| Average corrected to increased population | 00 | 00 | 82.66 |
| Death of persons above 90 | 0 | 0 | 0 |

TO CORRESPONDENTS.—Dr. Stiles's paper on Sunstroke, Dr. Hosmer's cases of Heart Disease, and N.'s letter from Philadelphia, will have an early insertion.

DEATHS IN BOSTON for the week ending Saturday noon, May 7th, 97. Males, 49—Females, 48.—Accident, 2—anaemia, 2—apoplexy, 2—disease of the bowels, 1—congestion of the brain, 4—disease of the brain, 3—bronchitis, 2—cancer, 1—consumption, 19—convulsions, 5—croup, 3—debility, 1—diarrhoea, 1—diphtheria, 1—dropsy, 1—dropsy of the brain, 2—epilepsy, 1—scarlet fever, 4—typhoid fever, 2—gastritis, 1—disease of the heart, 2—infantile disease, 1—intemperance, 1—disease of the kidneys, 1—laryngitis, 1—congestion of the lungs, 4—inflammation of the lungs, 10—malformation, 1—measles, 1—paralysis, 1—pneumonia, 1—smallpox, 3—organic disease of the stomach, 1—suffocation, 1—tumor, 1—unknown, 9.

Under 5 years of age, 31—between 5 and 20 years, 16—between 20 and 40 years, 25—between 40 and 60 years, 13—above 60 years, 12. Born in the United States, 63—Ireland, 22—other places, 12.